# COTTON CHATS

DRAPER CORPORATION
HOPEDALE, MASSACHUSETTS

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## MACHINES LIKE GREAT MEN MUST HAVE ANCESTORS

Biographers agree that neither environment nor education, nor both, ever produced a great man.

Somewhere in the ancestral line the qualities of greatness have been growing. Distinction of ancestry was not necessary. Untutored parents may have been the instruments of a divine destiny in gathering and welding those qualities. Together the forebears have worked out an intangible adjustment of man's physical and mental machinery that became the cornerstone of greatness.

Machines are like men.

Last year or the year before you saw a new make of automobile beautiful to look upon. Careful inspection brought only admiration for its mechanical construction. You bought it.

In the course of time troubles you never knew before developed, while your neighbors, with the old favorite make you formerly drove, passed your stalled or limping car.

Men of reputation in the motor world built that car. They put into it all that education and experience had taught them. They missed something they cannot

exactly grasp or analyze—something that will come only with the passing years and succeeding models, the co-ordination and adjustment of the various mechanisms of a complicated machine.

Education has made specialists with little foundation to build upon. Science and experience can build machines that have only one kind of motion.

Great men and complicated machines require both ancestors and experience.

## THE FAMILY TREE OF THE NORTHROP LOOM

When we began to build the Northrop loom in the early 90's, the common loom was one of the most primitive machines in modern industry.

Mechanical power had replaced hand power early in the century. Cast iron and steel had gradually replaced most of the wooden parts of the hand loom.

As a machine, however, from the machine-builder's standpoint, it was scarcely worthy the name. Rough castings were used. Primitive methods of building were employed. Parts were put together with unfinished joints. "Fixing" was depended upon to make the machine run properly.

Weaving largely depended upon the art of the weaver. The loom was chiefly a frame for holding the warp, with simple devices for laying and beating in the filling and moving the warp along as required. All the fine art of producing the cloth and giving it quality depended upon the weaver's skill and his control of the simple mechanisms of his primitive machine.

The first Northrop looms had to compete with these low-priced common looms. This entailed similar methods of manufacture.

Some refinements were basic requirements of the first automatic loom. To insure proper transfer of the bobbin,

shuttle box parts were made more nearly accurate, finished better, and the Shuttle stopped within narrower limits, both vertically and horizontally. Loomsides and girt ends were milled to give a rectangular frame. Largely, however, old methods of manufacture prevailed for the first ten or twelve years, while there was continued search for inventions to broaden the automatic features of the machine.

Sample looms were built on every order and "fixed," and the remaining looms were built to this sample.

## REACHING OUT FOR QUALITY

The first suggestion towards different methods of loom-building came from a desire to eliminate this sample loom building.

From this suggestion we developed in turn standardization of parts, better design, more jig work for accuracy, cut gears, better finishing and building methods.

As examples of these improvements that contributed to a better built and better operating loom, we might cite the adoption of the split lock washer, the grinding of the take up roll to exact size and accurately cut gears with the perfect tooth that run smoothly without backlash, have teeth always in contact and cannot bind like gears with involute teeth that must run on a pitch line. In the take up, these gears have resulted in a more even laying of the picks in the cloth and have almost entirely eliminated thick and thin places through the instant and easy operation of the let back motion.

Examples might be continued at great length. Perfected through the years, they operate to make the Northrop loom, wholly aside from its automatic features, the best built loom ever offered to the industry.

Confirmation of the importance of care in the mechanical construction of the loom has come with each passing year from other sources. Our loom has been ordered for an ever-increasing variety of weaves. The

practical problems these weaves presented for the automatic loom, the results of experiments carried on in our plant in that connection and the experience of the mills with their practical problems, all pointed in the same direction—that an automatic loom must run like a watch.

Meanwhile, too, mills were reaching out towards more looms per weaver. This meant that the time spent by the weaver in watching each loom was reduced; that the loom must be equipped, not merely with mechanical devices to do the mechanical work of replenishing the spent filling, but also with mechanical brains to replace the human brains called away to other duties.

To meet these problems, to furnish, improve and refine these mechanical brains, our splendid organization worked with zeal and singleness of purpose. Few of the changes they made have been spectacular. None of them compares with the original invention of the Northrop loom. None of them has marked an epoch in textile history. Yet some of them are as important, all of them collectively more so, than the original invention.

Today the Northrop loom is better than ever before. It is a greater labor-saver, a greater money-maker. Operatives are running more looms. Only a few mills have grasped the possibilities. More and more weaves have been brought within its range.

And the end is not in sight. The organization that has made the Northrop loom what it is today has the same power to steadily improve the product and to cooperate with and serve our customers that has marked its efforts in the past.

**The Northrop loom was the original automatic loom. It has been developed from experience. It contains qualities and perfections for weaving not apparent except in results. You may not see them. You may not miss them in looking at other looms. You will discover them in any comparison of results over a period of use.**